

Labour market activity among seniors

Sharanjit Uppal

In Canada, 65 remains the standard retirement age in the sense that full public pension benefits are available given work and residence requirements.¹ However, a number of policy changes have been made to lower barriers for seniors who wish to remain in the labour market. For example, mandatory retirement has been eliminated in most jurisdictions and the earned income exemption for the Guaranteed Income Supplement was recently raised. Other than policy makers, senior labour supply may be of interest to employers who have concerns about issues like knowledge transmission and skill shortages.

Despite the prominence of these issues, relatively little is known about how key factors such as education, health and financial status relate to senior labour market activity. Even though other studies have been devoted to the labour supply of individuals past the traditional retirement age of 65 (Duchesne 2002 and 2004, Haider and Loughran 2001, Walsh 1999, and Blau and Riphahn 1999),² recent information on the labour market participation of seniors in Canada is sparse.³

This study has three major objectives. First it provides detailed trends on the labour market activity of seniors by calculating employment rates among those at least 65 years of age and examining their industrial and occupational profiles. Next it examines the factors that may be associated with labour market participation after age 64. And, finally, it looks at the intensity of work and the characteristics associated with full-year, full-time hours reported by seniors. The study uses census data, the census being the only data source with an adequate sample size and a wide enough range of information to allow a detailed examination of senior workers.

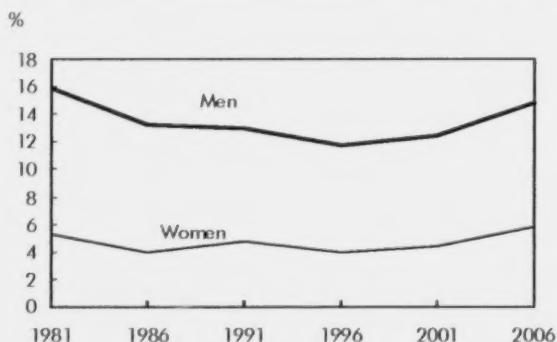
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Seniors' employment rates

In 2006, about 1 in 10 seniors participated in the labour market. Participation was higher for men (14.8%) than women (5.8%). These compare to rates of 15.9% for men and 5.3% for women in 1981 (Chart A).

The long-term trends in seniors' employment can be broken down into three periods: a period of significant decline (1981 to 1986), a period of relatively stable rates (1986 to 1996), and a period of increasing employment rates (1996 to 2006). For men, the rate fell by 2.6 percentage points between 1981 and 1986, followed by smaller declines in the next 10 years to reach 11.8% in 1996. Subsequent increases in the next two census years brought the employment rate for senior men to almost 15% in 2006. For senior women, the employment rate oscillated between 4% and 6% over the period ending with a gain of 1.4 percentage points between 2001 and 2006.⁴

Chart A Employment rates among seniors

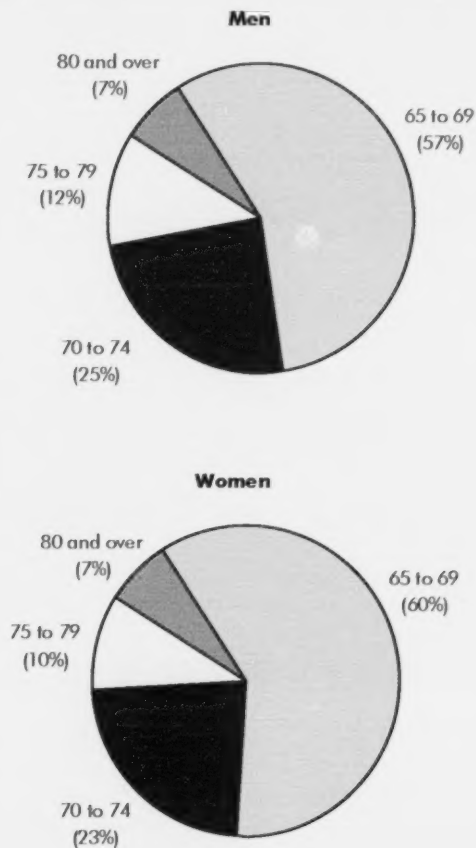


Source: Statistics Canada, Census of Population.

Among all employed seniors, 65- to 69-year-olds accounted for 56.5% of employed men and 60.1% of employed women (in 2006), while 70- to 74-year-olds accounted for an additional 24.5% and 23.0% for men and women, respectively (Chart B). Those 75 to 79 constituted 11.9% of the employed among men and 10.0% among women. Men and women 80 and over represented approximately 7% of employed seniors.

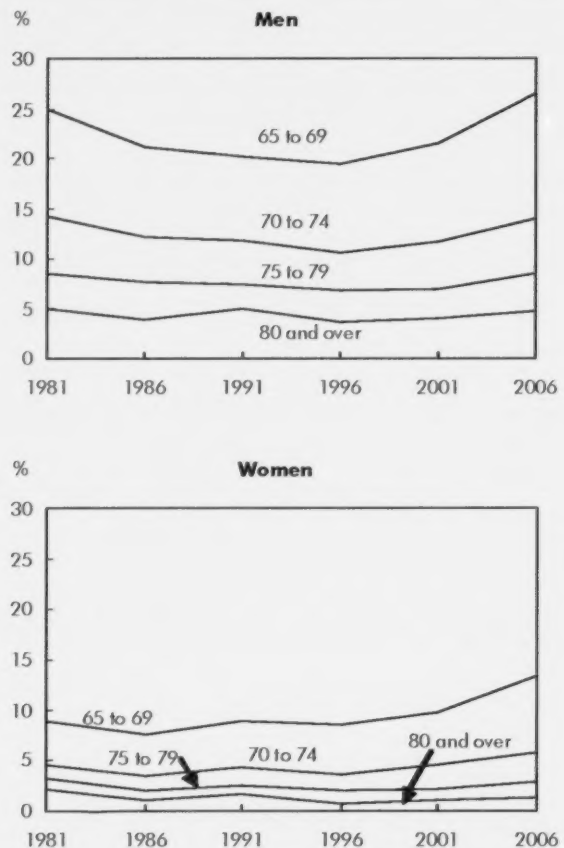
Among seniors, labour market participation generally declines with age. Men age 65 to 69 had higher rates of employment than their older counterparts in all years

Chart B Distribution of employment among seniors by age group



Source: Statistics Canada, Census of Population, 2006.

Chart C Employment rates among seniors by age group



Source: Statistics Canada, Census of Population.

and also showed the largest recent increase between 2001 and 2006: 5.1 percentage points (Chart C). Over the entire 1981 to 2006 period, employment rates increased much faster for women age 65 to 69 than for any other group.

Employment rates typically decline by 40% to 50% for men and 50% to 60% for women from their late 60s to their early 70s. In 2006, men age 70 to 74 had nearly the same employment rate as in 1981 following earlier losses and more recent gains. Women in this age group increased their employment rate by 1.2 percentage points over the 25-year span. Employment

Table 1 Employment by industry, senior versus prime-age workers

	Men		Women	
	25 to 64	65 and over	25 to 64	65 and over
	%			
Primary goods	5.8	17.1	2.3	11.1
Manufacturing	17.7	8.3	8.4	5.2
Construction and utilities	12.0	8.6	2.2	2.3
Transport	6.6	5.5	2.1	1.8
Consumer services	25.6	28.8	28.8	36.4
Business services	16.9	20.6	18.3	17.7
Education	5.0	3.6	11.4	7.6
Health	3.9	4.7	19.9	14.8
Public administration	6.5	2.8	6.5	3.1

Source: Statistics Canada, Census of Population, 2006.

rates were lower for workers age 75 and over and did not vary significantly in the 25-year period.

Many seniors working in consumer services

Older workers were concentrated in a few industries (Table 1).⁵ Among men, three industries were of particular importance as they employed two-thirds of all working seniors: consumer services, business services and primary goods. Of the three, consumer services had the largest share of seniors as 28.8% of working men were employed in this industry in 2006. Among older women, more than two-thirds were employed in consumer services, business services or health-related industries with consumer services accounting for 36.4% of employment.

Senior men and women were not necessarily employed in the same industries. The male-female gap was the most predominant in the health sector as 14.8% of employed women were working in this industry in 2006 compared with only

4.7% of employed men. In contrast, men were more likely to be employed in primary goods, and in construction and utilities.

The industrial profile of senior workers in 2006 was also quite different from that of younger workers. Senior men were much more likely to be employed in primary goods (17.1% for seniors versus 5.8% for younger workers), whereas men age 25 to 64 were

much more likely to be working in manufacturing (17.7% for younger workers versus 8.3% for seniors) and in public administration (6.5% for younger workers versus 2.8% for seniors). Among women, seniors had a much higher likelihood of being employed in primary goods (11.1% for seniors versus 2.3% for younger workers) and in consumer services (36.4% for seniors versus 28.8% for younger workers), but were less likely to work in public administration (3.1% for seniors versus 6.5% for younger workers).

There were also significant changes in the concentration of senior workers across industries between 2001 and 2006 (Table 2).⁶ Although consumer services was the largest employer of senior men in both years, other categories varied in importance over the period. Primary goods industries lost the most ground as its share declined by 5.6 percentage points between 2001 and 2006. In contrast, construction and utilities recorded the largest gain (1.4 percentage points). Among employed senior women, health-related industries recorded

Table 2 Senior employment by industry, 2001 versus 2006

	Men		Women	
	2001	2006	2001	2006
	%			
Primary goods	22.8	17.1	16.7	11.1
Manufacturing	8.3	8.3	5.7	5.2
Construction and utilities	7.2	8.6	2.1	2.3
Transport	4.4	5.5	1.3	1.8
Consumer services	27.7	28.8	35.6	36.4
Business services	19.4	20.6	16.7	17.7
Education	2.7	3.6	6.7	7.6
Health	4.5	4.7	12.5	14.8
Public administration	3.0	2.8	2.9	3.1

Source: Statistics Canada, Census of Population.

the biggest gain as their share increased by 2.3 percentage points over the period. In contrast, the share of senior women working in primary goods industries decreased by 5.6 percentage points between 2001 and 2006.

Farmer still the most common occupation for senior men

Among working senior men, the top occupation was farmer and farm manager, with 11.5% of seniors employed in this group in 2006 (Table 3). This differed from men age 25 to 64 as farmers and farm managers represented only 1.6% of the workforce for this group. The second most common occupation for senior men was retail salesperson and sales clerk, employing 3.8% of working men in 2006. The third and fourth most frequent occupational categories were truck driver and janitor, caretaker and building super-

intendent, at 2.9% each. Among women, the top occupation was retail salesperson and sales clerk (6.6% among seniors versus 3.8% among prime-age workers).

Working seniors were more concentrated in a few occupations compared with younger workers. Among senior men, for example, the top five occupations accounted for 23.7% of employment compared with 12.3% among workers age 25 to 64. Occupational concentration was also much higher among senior women as almost 26% of employed women age 65 and over were concentrated in the top five occupations, compared with about 18% among younger women.

Significant changes also occurred in the occupational profile of seniors between 2001 and 2006 (Table 4). First, the concentration decreased over the period as the top 25 occupations employed 50.4% of working men in 2006 (compared with 53.6% in 2001). Among women, the proportion fell from 62.3% to 59.8% over the same period. The decrease in the concentration of older workers among farmers and farm managers was particularly noticeable. Between 2001 and 2006, the proportion of older men employed in this category fell from 17.6% to 11.5%. Among women, this proportion fell from 10.1% to 6.1%. The share of senior women increased in many other occupations, including retail salespersons and sales clerks, secretaries (except legal and medical) and nurses. Hence, the occupational profile of older workers has become more diverse.

Descriptive overview of factors associated with employment

Among factors that can be expected to be associated with seniors' employment, four may be of particular significance (see *Data source and definitions*). They are financial status (family income other than individual employment income, adjusted for family size), educational attainment, health status (proxied by activity limitation information), and financial obligations (proxied with a mortgage payment indicator).

Past research indicates that financial resources do not necessarily have a straightforward relationship with work among older workers. The relationship varies according to the level and other sources of income. At the lower end, those with low levels of income other than individual earnings might have to work to maintain a minimum standard of living. At the other

Table 3 Top 5 occupations, seniors versus prime-age

Men	%
25 to 64	
Truck drivers	3.7
Retail salespersons and sales clerks	2.6
Retail trade managers	2.5
Janitors, caretakers and building superintendents	1.8
Automotive service technicians, truck and bus mechanics and mechanical repairers	1.7
65 and over	
Farmers and farm managers	11.5
Retail salespersons and sales clerks	3.8
Truck drivers	2.9
Janitors, caretakers and building superintendents	2.9
General farm workers	2.6
Women	
25 to 64	
Retail salespersons and sales clerks	3.8
Registered nurses	3.8
Secretaries (except legal and medical)	3.4
General office clerks	3.4
Elementary school and kindergarten teachers	3.3
65 and over	
Retail salespersons and sales clerks	6.6
Secretaries (except legal and medical)	6.5
Farmers and farm managers	6.1
Bookkeepers	3.8
General office clerks	2.9

Source: Statistics Canada, Census of Population, 2006.

Table 4 Top 25 occupations for employed seniors

	2001	2006
	%	
Men		
Farmers and farm managers	17.6	11.5
Retail salespersons and sales clerks	2.6	3.8
Truck drivers	2.1	2.9
Janitors, caretakers and building superintendents	2.8	2.9
General farm workers	2.5	2.6
Retail trade managers	3.4	2.4
Security guards and related occupations	2.0	2.0
Sales representatives, wholesale trade (non-technical)	1.8	1.7
Financial auditors and accountants	1.6	1.6
Bus drivers and subway and other transit operators	1.1	1.5
Senior managers - goods production, utilities, transportation and construction	1.3	1.4
Real estate agents and salespersons	1.3	1.3
Ministers of religion	1.3	1.2
Senior managers - financial, communications and other business services	1.2	1.2
Senior managers - trade, broadcasting and other services, n.e.c.	1.2	1.2
Taxi and limousine drivers and chauffeurs	...	1.2
Delivery and courier service drivers	1.0	1.2
Lawyers and Quebec notaries	1.1	1.2
Carpenters	1.1	1.2
General practitioners and family physicians	1.3	1.1
Property administrators	1.2	1.1
Landscaping and grounds maintenance labourers	0.9	1.1
Automotive service technicians, truck and bus mechanics and mechanical repairers	...	1.0
Sales, marketing and advertising managers	1.0	1.0
Specialist physicians	0.8	1.0
Construction managers	0.9	...
Restaurant and food service managers	0.9	...
Women		
Retail salespersons and sales clerks	5.3	6.6
Secretaries (except legal and medical)	6.1	6.5
Farmers and farm managers	10.1	6.1
Bookkeepers	4.4	3.8
General office clerks	2.9	2.9
Light duty cleaners	2.6	2.8
Registered nurses	1.5	2.7
Retail trade managers	2.7	2.2
General farm workers	3.4	2.1
Visiting homemakers, housekeepers and related occupations	1.6	2.1
Administrative officers	1.5	2.0
Babysitters, nannies and parents' helpers	3.1	1.9
Receptionists and switchboard operators	1.6	1.9
Cashiers	1.2	1.7
Accounting and related clerks	1.5	1.6
Real estate agents and salespersons	1.2	1.5
Elementary school and kindergarten teachers	...	1.4
Early childhood educators and assistants	1.5	1.4
Janitors, caretakers and building superintendents	1.6	1.4
Food counter attendants, kitchen helpers and related occupations	1.3	1.4
Nurse aides, orderlies and patient service associates	...	1.3
Property administrators	1.3	1.2
Other elemental sales occupations	1.5	1.2
Cooks	1.2	1.2
Financial auditors and accountants	1.2	1.0
Musicians and singers	1.3	...
Accommodation service managers	0.9	...

Source: Statistics Canada, Census of Population, 2001 and 2006.

Data source and definitions

Census data on men and women, 65 years of age and over, for the years 1981, 1986, 1991, 1996, 2001 and 2006 were used in the study. The choice of census as a data source was predominantly motivated by a need for a detailed analysis and the accompanying requirements of relatively large sample sizes for various sub-groups. The census is conducted every five years. Four-fifths of households receive the short form, which asks for basic information only. The remaining 20% of households receive the long form which, in addition to the basic information, also asks more detailed questions on matters including labour market activities. The 20% sample information is later weighted to represent all Canadians.

Variable definitions

Employed: a person is considered employed if he or she had a job in the reference week (week preceding the census)—includes persons who were temporarily absent for the entire week because of vacation, illness, a labour dispute at work, maternity/parental leave, bad weather, fire or family responsibilities, or for some other reason.

Employment rate: the number of employed persons expressed as a percentage of the relevant population.

Employee: a person paid for work via wages, salary, tips or commission.

Self-employed: includes individuals who had a job in the reference week and were self-employed without paid help and not incorporated; self-employed with paid help and not incorporated; or paid workers who were incorporated business owners with or without paid help.

Unpaid family worker: a person working without pay for a relative in a family business or on a farm.

Work activity: based on data prior to the census year as data on weeks worked are for the previous year. An individual was classified as working full year, full time if he or she worked 49 to 52 weeks full time (30 hours or more per week).

Other family income: this variable is calculated by first subtracting individual employment income (if any) from total economic family income and then adjusting for family size by dividing it by an adjustment factor that takes the lower relative needs of additional family members into account.

Income quintiles are then calculated using the adjusted other family income. Note that information on income variables is for the year prior to the census year.

Education: education levels are constructed using the highest certificate, diploma or degree variable. The various categories are collapsed into five levels. The lowest level, Level 1, is below a high school graduation certificate or equivalency diploma. Level 2 is a high school graduation certificate or equivalency diploma. Level 3 includes other trade certificates/diplomas or registered apprenticeship certificates. Level 4 consists of college, CEGEP or other non-university certificates or diplomas from a program of 3 months to less than 1 year, college, CEGEP or other non-university certificates or diplomas from a program of 1 year to 2 years, college, CEGEP or other non-university certificates or diplomas from a program of more than 2 years, or certificates or diplomas below bachelor. The highest level, Level 5, includes bachelor's degrees, certificates or diplomas above bachelor, degrees in medicine, dentistry, veterinary medicine or optometry, master's degrees, or earned doctorate degrees.

Activity limitations: the limited often and limited sometimes variables are based on the following census questions, which refer to conditions or health problems that have lasted or are expected to last six months or more:

1. "Does this person have any difficulty hearing, seeing, communicating, walking, climbing stairs, bending, learning or doing any similar activities?" (Yes, often; Yes, sometimes; No).
2. "Does a physical condition or mental condition or health problem reduce the amount or the kind of activity this person can do: (a) at home? (b) at school or at work? (c) in other activities, for example, transportation or leisure?" (Yes, often; Yes, sometimes; No).

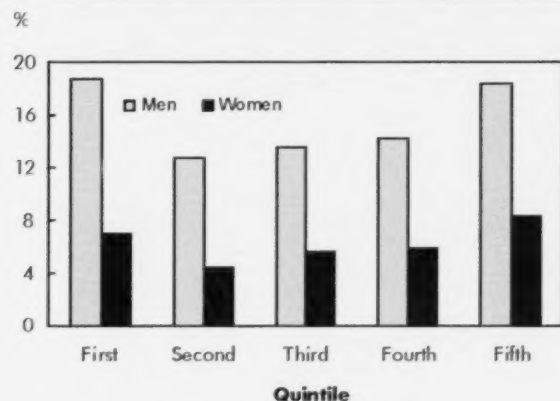
Mortgage payments: the variable is "yes" if any regular mortgage or loan payments are being made; "none" if none are being made; "not applicable" if the individual does not own the dwelling. Other than information on the value of the dwelling and mortgage payments, the census does not include other measures of individual wealth.

Occupation: Based on National Occupational Classification (520 occupations).

extreme, those with high levels of other income are also likely to be highly educated and, given that education is positively related to employment (Haider and Loughran 2001), they are more likely to be employed. In addition, those with high levels of such income are more likely to have spouses who are still employed (as spousal earnings are a part of this income). Earlier research (Blau and Riphahn 1999, and Schirle 2008) has shown that one member of a couple is much more

likely to be employed if the other spouse is employed than if the spouse is not employed. Another factor could be that those in higher income quintiles may be business owners.

To account for both income size and composition effects, the total and its separate components were examined. The total, 'other family income,' is defined as family income minus employment income (if any),

Chart D Employment rates among seniors by 'other family income' quintile

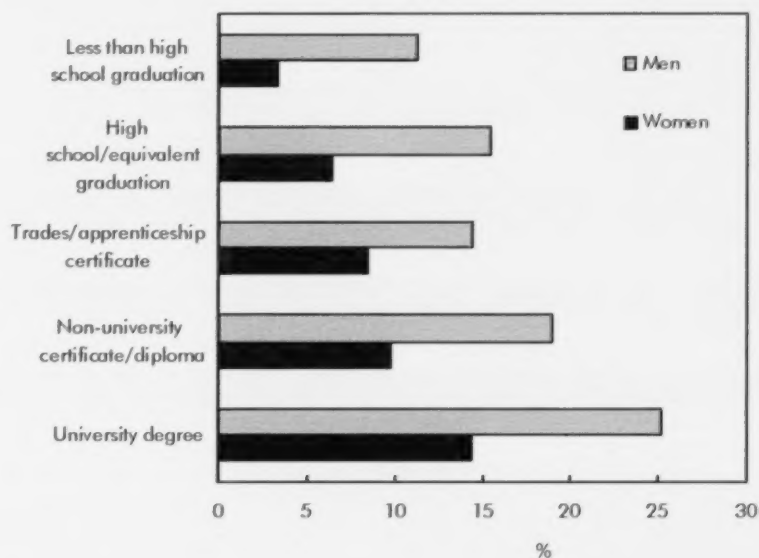
Source: Statistics Canada, Census of Population, 2006.

and is adjusted for family size (see *Data source and definitions*). Other family income consists of three main components: public pensions (Canada Pension Plan/Quebec Pension Plan, Old Age Security, and other government transfers [e.g., Guaranteed Income Supplement]), private income (private pensions, registered retirement savings plans, investment income, and other money income), and employment income of other family members.⁷ Descriptive results are presented for other family income, while the three components are incorporated into multivariate models.

Men and women in the lowest and highest other family income quintiles were more likely to be employed compared with those in the second, third and fourth quintiles. In 2006, 18.7% of men in the first quintile and 18.3% of those in the fifth quintile were employed (Chart D). In the second, third and

fourth quintiles, the proportions were 12.7%, 13.5% and 14.2%, respectively. The same pattern is evident for women, although at lower levels than for men.

Highly educated seniors are much more likely to continue working past the traditional retirement age (Haider and Loughran 2001, and Parries and Sommers 1994) (Chart E). In 2006, 25.2% of men with at least a university degree were employed compared with 11.3% of those without a high school diploma. Among women, the respective rates were 14.4% and 3.4%. The employment rates for intermediate levels of education were located between these two extremes. One of the reasons for the positive relationship between education and employment among seniors is that jobs requiring higher levels of education are usually less physically demanding (Park 2007). In such conditions, physical limitations associated with aging may be less likely to lead to retirement.

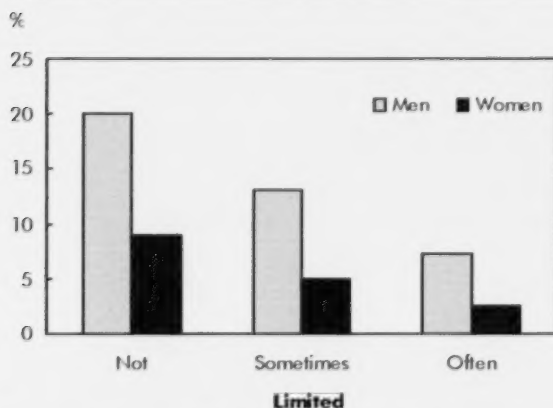
Chart E Employment rates among seniors by level of education

Source: Statistics Canada, Census of Population, 2006.

Health status has also been cited as a determinant of labour market activity among seniors. Activity limitations—a key element of the health status of seniors—have been found to be negatively associated with employment among the elderly (Haider and Loughran 2001, and Parries and Sommers 1994). In 2006, 21.8% of senior men and 24.0% of senior women reported that they were “often” limited in their daily activities. Another 26.2% of men and 27.5% of women stated that they were “sometimes” limited. Activity limitations were associated with employment decisions (Chart F). Among men, 20.1% of those without any limitations were employed, while 13.1% of the “sometimes” limited and 7.3% of the “often” limited were working. Among women, 8.9% of those who did not report any limitations were employed. For those with some form of activity limitation, the rates were less than 5%.

Finally, seniors carrying debt might be constrained to stay in the labour market to meet their financial obligations.⁸ Even though the census does not provide a complete balance sheet, it does have information on the presence of a mortgage—the largest debt for most individuals. On the basis of this measure, 18.8% of senior men and 16.3% of senior women reported that their households were making regular mortgage payments. Another 20.9% of men and 28.8% of women

Chart F Employment rates among seniors by activity limitation



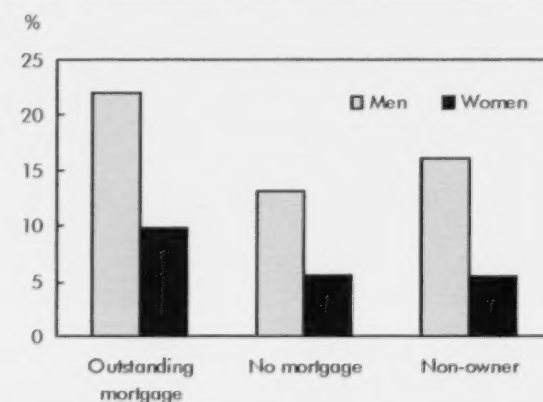
Source: Statistics Canada, Census of Population, 2006.

did not own their dwellings. The remainder owned their homes mortgage-free. Overall, 22.1% of men and 9.9% of women who had a mortgage were still active in the labour market (Chart G). Seniors without a mortgage, whether renters or mortgage-free owners, were less likely to work.

Modelling the employment of seniors

In order to gauge the potential relationship between the above factors and the probability of being employed, a logit model was estimated with all four explanatory factors as independent variables. A number of sociodemographic variables were also included as controls.

Chart G Employment rates among seniors by outstanding mortgage



Source: Statistics Canada, Census of Population, 2006.

The results indicated that education is positively associated with employment (Table 5). When those with a high school diploma were used as the reference group, women with the lowest educational attainment had lower odds of being employed. In contrast, those with higher education levels were more likely to be employed. This was especially true for university-educated women. In fact, the odds ratio⁹ for women in this level was two times higher than for those with a high school diploma. Among men, those with less than high school

Table 5 Odds ratios for employment model¹ for seniors

	Men	Women
	ratio	
Other family income		
First quintile	1.51*	1.59*
Second quintile	1.01	0.93*
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.93*	0.88*
Fifth quintile	1.15*	1.11*
Highest level of education		
Less than high school	0.77*	0.62*
High school or equivalent (ref.)	1.00	1.00
Trades/apprenticeship certificate	0.93*	1.24*
Non-university certificate/diploma	1.23*	1.44*
University degree	1.80*	2.01*
Activity limitations		
None (ref.)	1.00	1.00
Sometimes	0.68*	0.64*
Often	0.39*	0.39*
Mortgage payments		
Yes (ref.)	1.00	1.00
None	0.55*	0.55*
Non-owners	0.92*	0.79*

* significantly different from the reference group (ref.) at the 0.01 level
 1. Dependent variable = 1 if employed in the reference week,
 0 otherwise.

Note: Models also controlled for age, marital status, immigrant/
 Aboriginal status, official language, type of region, and province.
 Source: Statistics Canada, Census of Population, 2006.

or with a trades/apprenticeship certificate were less likely to be employed. As with women, men with a university education were the most likely to work.

A mortgage can be a good proxy for total household debt levels. Homeowners without mortgage payments and non-owners were less likely to be employed compared with those making regular mortgage payments.¹⁰ The odds ratios were lower by 0.45 and 0.08 for men without mortgage payments and non-owners, respectively. For women, the odds ratios related to these two categories were lower by 0.45 and by 0.21.

Seniors with activity limitations were also less likely to be employed. In comparison with men without any activity limitations, the odds ratio for men who stated they were "sometimes" limited was lower by 0.32. The odds were even lower (by 0.61) for those who stated that they were "often" limited, which is indicative of the severity of a disability. Similarly, the odds were

lower by 0.61 for women who indicated they were often limited and by 0.36 for those who were sometimes limited.

The model indicated that men in the bottom and top other family income quintiles were more likely to be employed compared with those in the middle quintile, while the coefficients for the second quintile were not significantly different from the middle quintile.¹¹ Compared with those in the middle quintile, the odds ratio for those in the bottom quintile was higher by 0.51. The corresponding number for those in the top quintile was 0.15. Similarly, women in the bottom and top income quintiles were more likely to be employed compared with those in the middle. However, women in the second and fourth income quintiles were less likely to be employed. The odds ratios for those in the first and fifth quintiles were higher by 0.59 and 0.11, respectively, compared with the middle quintile. On the other hand, the odds ratios were lower by 0.07 and 0.12 for those in the second and fourth quintiles, respectively.

Descriptive statistics showed that both men and women in the bottom and top income quintiles were more likely to work. However, because employment was also positively related with high educational attainment, and because individuals in the top income quintile are also likely to be highly educated, the impact on employment from being part of the top quintile could be expected to be much lower when education variables are accounted for. However, even after controlling for education, men in the top quintile were still more likely to be working as opposed to those in the middle. One potential explanation is that a high level of other family income may be indicative of other family members working. Moreover, the source of other income may affect the decision to work.

To study the impact of other family income in more detail, it was split into three components: public pensions (Canada Pension Plan/Quebec Pension Plan, Old Age Security, and other government transfers [e.g., Guaranteed Income Supplement]), private income (private pensions, registered retirement savings plans, investment income, and other money income), and an indicator for the presence of another family member with positive employment earnings. Quintiles for public pensions and private income were included in the model. However, earnings of other family members could not be split into quintiles as approximately 70% did not have another family member with positive earnings.

Men and women in the top two quintiles of public pensions and private income became less likely to be employed than those in the middle quintile when earnings of other family members were taken out of the equation, while those in the bottom two quintiles of public and private pensions remained more likely to work (Table 6). Seniors with positive earnings from other family members (spouses in most cases) were more likely to be working themselves, especially men. Thus, the employment decision for those in the top quintile appears to be driven by work decisions of other family members (mostly the spouse), and for those in the bottom quintile by relatively low income from public pensions and private sources. The models were also estimated separately for the youngest group (65 to 69 years of age) as they constitute the majority of senior workers. The conclusions remained unchanged.¹²

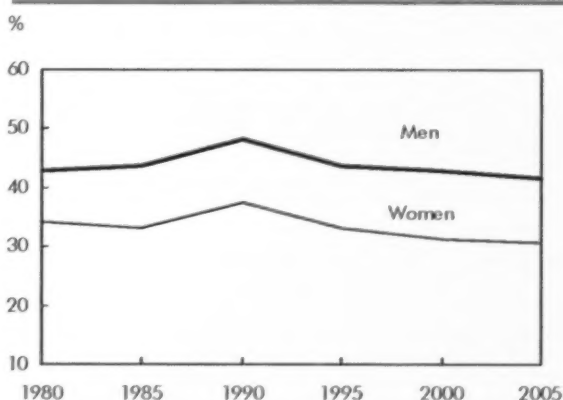
Descriptive overview of work intensity

The amount of time seniors spend on the job is also of interest. A significant minority of senior workers reported full-year, full-time jobs (Chart H).¹³ Among

men, slightly more than 40% worked full year, full time in 2005. Just under one-third of working women also worked on a full-year, full-time basis in 2005 (31%), although just as many worked on a part-time, part-year basis (31%). These results were similar across census years.

The proportion of seniors working full time, full year varied little across age groups (Table 7). Among men, those age 65 to 74 were slightly more likely to work full year, full time compared with those 75 and over (41.8% versus 40.4%). Among women, 30.2% of the 65 to 74 group worked full year, full time in 2005, compared with 32.2% of working women 75 and over.

Chart H Seniors employed full year, full time



Source: Statistics Canada, Census of Population, 1981 to 2006.

Table 6 Odds ratios for alternative seniors' employment model¹

	Men	Women
Public pensions/government transfers		
First quintile	1.92*	1.83*
Second quintile	1.20*	1.19*
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.90*	0.93*
Fifth quintile	0.93*	0.95*
Private income		
First quintile	1.30*	1.10*
Second quintile	1.34*	1.21*
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.78*	0.79*
Fifth quintile	0.81*	0.69*
Other family member with positive earnings		
Yes	2.16*	1.68*
No (ref.)	1.00	1.00

* significantly different from the reference group (ref.) at the 0.01 level
1. Dependent variable = 1 if employed in the reference week, 0 otherwise.

Note: Models also controlled for education, activity limitations, mortgage payment indicator, age, marital status, immigrant/Aboriginal status, official language, type of region, and province.
Source: Statistics Canada, Census of Population, 2006.

Some personal and job characteristics were associated with a higher probability of working full year, full time. This was the case for women who were unpaid family workers and men who were self-employed. Both men and women in management positions were much more likely to work full year, full time (53.0% for men and 46.4% for women). In contrast, unskilled workers were much less likely to work on a full-year, full-time basis.

In the previous section, results indicated that men who were in the bottom quintile of other family income were more likely to be employed. They were not only

Table 7 Full-year, full-time employment rates by age, employment status and occupation

	Men	Women
		%
Total	41.6	30.6
Age		
65 to 74	41.8	30.2
75 and over	40.4	32.2
Employment status		
Employee	39.8	29.6
Self-employed	43.8	32.0
Unpaid family worker	30.1	40.4
Occupation		
Management	53.0	46.4
Professional	35.9	23.4
Skilled	45.4	33.5
Semi-skilled	38.3	29.6
Unskilled	30.1	23.2

Source: Statistics Canada, Census of Population, 2006.

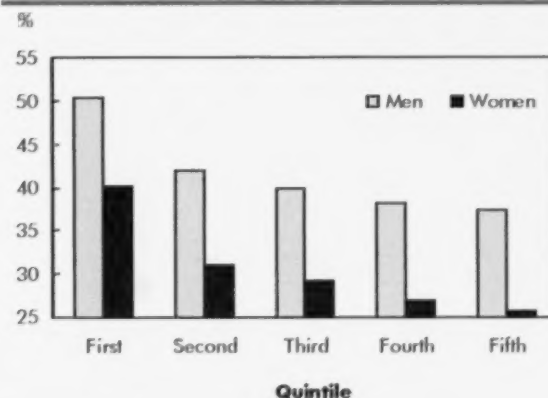
more likely to be employed, but were also working more intensively as 50.4% of employed men and 40.2% of employed women in the bottom quintile worked the entire year on full-time basis (Chart 1).

Results indicated that men in the top quintile were more likely to be working as opposed to those in the middle. However, they were less likely to be working full-year, full-time compared with men in any other quintile. Similar trends were found among women.

Modelling work intensity

To test the robustness of the above findings, another logit model was estimated to study the association of various variables with the probability of working full year, full time. Results indicate that working seniors in the bottom income quintile were more likely to work full year, full time in comparison with those in the middle quintile, while the opposite was true for seniors in the top two quintiles (Table 8). Among men, the odds ratio for those in the bottom quintile was higher by 0.46 compared with those in the middle.

Although higher educational attainment was associated with a lower probability of working full year, full time for men, the results for women were not as clear.

Chart 1 Full-year, full-time rates by other family income quintile

Source: Statistics Canada, Census of Population, 2006.

Those with a trades/apprenticeship certificate were less likely to work on a full-year, full-time basis than those with a high school diploma, with results statistically insignificant for other levels. Seniors with activity limitations were less likely to work full year, full time than those without. Finally, those without mortgage payments were less likely to work full year, full time.

Models were again re-estimated after splitting other family income into public pensions, private income, and an indicator of another family member with positive earnings. Men in the bottom two quintiles of public pensions and private income were more likely and those in the top two quintiles less likely to work full year, full time compared with those in the middle quintile (Table 9). For women, this was only true for private income.

For public pension income, women in the bottom two quintiles and the top quintile were more likely to work full year, full time compared with those in the third quintile. For both men and women, those who had another family member with positive earnings were more likely to work full year, full time.

When the models were estimated to include only those age 65 to 69, the conclusions remained unchanged for men. For women, one conclusion regarding public pensions changed—the coefficient for the fifth quintile was statistically insignificant.¹⁴

Table 8 Odds ratios for seniors' work intensity model¹

	Men	Women
	ratio	
Other family income		
First quintile	1.46*	1.48*
Second quintile	1.06	1.04
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.94**	0.89**
Fifth quintile	0.90*	0.82*
Highest level of education		
Less than high school	1.08*	1.03
High school or equivalent (ref.)	1.00	1.00
Trades/apprenticeship certificate	0.91*	0.89**
Non-university certificate/diploma	0.92*	0.94
University degree	0.84*	0.93
Activity limitations		
None (ref.)	1.00	1.00
Sometimes	0.74*	0.74*
Often	0.74*	0.81*
Mortgage payments		
Yes (ref.)	1.00	1.00
None	0.71*	0.68*
Non-owners	1.08*	0.91**

* significantly different from the reference group (ref.) at the 0.01 level; ** at the 0.05 level

1. Dependent variable = 1 if employed full year, full time, 0 otherwise.

Note: Models also controlled for age, marital status, immigrant/Aboriginal status, official language, industry, occupation, employment status, type of region, and province.

Source: Statistics Canada, Census of Population, 2006.

Table 9 Odds ratios for alternative seniors' work intensity model¹

	Men	Women
	ratio	
Public pensions/government transfers		
First quintile	1.68*	1.75*
Second quintile	1.16*	1.25*
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.91*	0.99
Fifth quintile	0.90*	1.10**
Private income		
First quintile	1.42*	1.51*
Second quintile	1.34*	1.28*
Third quintile (ref.)	1.00	1.00
Fourth quintile	0.81*	0.84*
Fifth quintile	0.68*	0.65*
Other family member with positive earnings		
Yes	1.19*	1.08**
No (ref.)	1.00	1.00

* significantly different from the reference group (ref.) at the 0.01 level; ** at the 0.05 level

1. Dependent variable = 1 if employed full year, full time, 0 otherwise.

Note: Models also controlled for education, activity limitations, mortgage payment indicator, age, marital status, immigrant/Aboriginal status, official language, industry, occupation, employment status, type of region, and province.

Source: Statistics Canada, Census of Population, 2006.

Conclusion

While most seniors retire by age 65, many continue to work beyond this traditional milestone. In addition to policy changes that have eliminated the mandatory age of retirement, improved education levels and health status over time have created conditions for people to work longer.

Using Canadian census data, this study examined trends in work activity among seniors at least 65 years of age from 1981 to 2006. It also used 2006 Census data to study the factors that are associated with employment at this age. Results indicate that the employment rate among seniors has been on the rise in recent years after registering declines in the 1980s and early 1990s. Between 1996 and 2006, the rate increased from 11.8% to 14.8% for men and from 4.0% to 5.8% for women.

Among those who also worked the previous year, many did so on a full-time, full-year basis (41.6% of men and 30.6% of women). Working seniors were highly concentrated in consumer services and had a less diverse occupational profile than younger workers.

This study also modelled many factors associated with the labour market participation of seniors. Men and women in the bottom and top quintiles of other family income were more likely to be employed compared with those in the middle, although the association was stronger for those in the bottom quintile. Bottom-quintile individuals were not only more likely to work—they also worked more intensively. However, a detailed analysis of income sources showed that not all sources of income equally affected seniors' probability of working. Private sources of income and public pensions were negatively associated with labour market participation, while earnings of family members (mostly spouses) were positively associated with

labour market participation. Higher levels of education, the absence of activity limitations and the presence of mortgage payments were other factors associated with a higher probability of employment. Overall, such results suggest that even if some seniors stay in the labour market by choice, many others likely remain working out of necessity. And the work intensity of those who are financially constrained is significantly higher.

Perspectives

■ Notes

1. Other countries also began introducing policy changes to deal with an aging workforce. For example, the United States raised the eligibility age for social security to 67 for those born after 1960. Also, it provides delayed retirement credits to seniors working past retirement age.
2. However many studies focus on early retirement behaviour. Examples of studies using Canadian data include Baker et al. 2003, Campolieti 2001 and 2002, and Maki 1993.
3. Some examples of studies on the determinants of labour market participation among seniors can be found in other countries. For example, Haider and Loughran (2001) used U.S. data and found that the labour supply of seniors was concentrated among the most educated, wealthiest and healthiest. It also reported that non-pecuniary considerations play an important role in determining employment decisions among seniors. Using data from Germany, Blau and Riphahn (1999) found that one member of a couple was much more likely to be employed if the other spouse was also employed.
4. These numbers are mainly influenced by the labour market participation of pre-baby boomers. With the much better-educated baby boomers now approaching their retirement years, the employment rates could rise even further in the future.
5. For the remainder of the paper, institutional residents are excluded from the analysis as information on various variables is not available for them. Note that for the rest of the population, the employment rate in 2006 was 15.5% among men and 6.3% among women.
6. Comparisons are made with 2001 rather than 1981 as the industrial and occupational classification has changed over time. Also, most of the increase in labour market participation occurred between 2001 and 2006.
7. Some of the existing Canadian studies addressing the association between labour market decisions and pensions include Baker et al. (2003), and the association between labour market decisions and spousal earnings include Schirle (2008). Parries and Sommers (1994) study the relationship between "non-labour income" (in addition to other variables) and the labour force participation of men age 68 and over in the United States.
8. Fortin (1995) shows that among married Canadian women age 35 to 65, labour force participation rates were higher for women in home-owning families with mortgages compared with women from families that either rent or own a home with no mortgage. Using Australian data, Belkar et al. (2007) find that indebtedness increases an individual's probability of participation in the labour force, especially the levels of owner-occupied mortgage debt for men.
9. The odds ratio is the ratio for the odds of an event occurring in one group compared with the odds of it occurring in another group. An odds ratio greater than 1 indicates that the event is more likely to occur in that particular group compared with the reference group. On the other hand, an odds ratio less than 1 indicates that the event is less likely to occur. For example, in an employment model, if the odds ratio for men is 1.20 with women being the reference group, it would imply that the odds for men being employed are higher by 0.20 compared with women. On the other hand, an odds ratio of 0.80 for men can be interpreted as the odds for men being employed are lower by 0.20 compared with women.
10. The causal nature of the relationship between mortgage debt and employment might be argued. Belkar et al. (2007), Del Boca and Lusardi (2002), and Fortin (1995) find that mortgage payments are exogenous to the labour force decision. This exogeneity is more likely to hold for seniors as they are less likely to take on bigger mortgage debts due to their work activity.
11. Some of the independent variables might be related. For example, individuals in the higher income quintile are also likely to be the ones with higher levels of education. Keeping this in mind, first a model was estimated without education and a mortgage rate indicator. The results, which are qualitatively the same as the ones from the full model presented here, are available from the author upon request.
12. The results are available from the author upon request.
13. The employed sample was restricted to men and women 66 years of age and over in the census year because information on weeks of work is available for the year prior to the census. The sample consisted of individuals who worked both in the census year and the previous year. This should not create much of a bias given that a very small proportion of individuals worked in the census year and not the previous year. For example, for the 2006 Census this proportion was 0.9% among men and 0.5% among women.
14. The results are available from the author upon request.

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